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10/531,860	11/16/2005	Francois Giordano	12400-037	3997

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EXAMINER	
PATTON, SPENCER D	
ART UNIT	PAPER NUMBER
3664	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,860	GIORDANO, FRANCOIS	
	Examiner	Art Unit	
	SPENCER PATTON	3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 December 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/23/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Request for Continued Examination and Amendment filed April 20, 2009 has been entered. Claims 1-21 remain pending in the application.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. **Claims 1, 2, 5-9, and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al (US Patent No. 5,977,653) in view of Bauch et al (GB Patent No. 2,370,671) and ColinC (Airbag ECU location??).

Schmid et al teaches:

Re claim 1. A vehicle safety arrangement for a vehicle, the arrangement comprising:

a sensor unit (impact detection configuration 20, figure 3) comprising at least one sensor responsive to acceleration (acceleration sensor 5, figure 3), the sensor unit having a signal processor for sampling data gathered by the one or more sensors (control unit 3, figure 3);

at least one actuator for activating a safety device, the actuator being located remotely from the sensor unit (firing element 100, figure 3); and

a control unit located remotely from the sensor unit and from the actuator (central configuration 10, Figure 3), the control unit being operable to receive information from the sensor unit (column 5, lines 30-36) and to transmit an actuation command to the

actuator to activate the safety device (column 5, lines 42-46), wherein the control unit comprises no sensor responsive to acceleration (Figure 3, and column 7, lines 45-48; all acceleration sensors have been removed from the central configuration 10).

Schmid et al fails to specifically teach: (re claim 1) a control unit located away from the central longitudinal line. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to position the control unit away from the central longitudinal line since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Additionally ColinC teaches that 1998 Renault Espaces have the airbag ECU located under the passenger seat.

In view of ColinC's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the vehicle safety arrangement for a vehicle as taught by Schmid et al, (re claim 1) a control unit located away from the central longitudinal line, since ColinC teaches that this is how some vehicles are already made, and therefore space will already be available for a control unit for the airbag under the seat, thus not requiring a redesign to open up space elsewhere in the vehicle.

Re claims 1 & 2.

Schmid et al fails to specifically teach: (re claim 1) the sensor unit being located substantially along a central longitudinal line of the vehicle; (re claim 2) wherein the sensor unit is located on a central tunnel of the vehicle.

Bauch et al teaches locating an acceleration sensor in the tunnel portion of a vehicle to obtain lateral acceleration readings of the vehicle (page 7, lines 17-24).

In view of Bauch et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the vehicle safety arrangement for a vehicle as taught by Schmid et al, (re claim 1) the sensor unit being located substantially along a central longitudinal line of the vehicle; (re claim 2) wherein the sensor unit is located on a central tunnel of the vehicle; since Bauch et al teaches an accelerometer in the tunnel portion of a vehicle to effectively measure the lateral acceleration of the vehicle.

Schmid et al, as combined with Bauch et al as discussed above, also teaches:

Re claim 5. A safety arrangement according to Claim 1, wherein the signal processor is operable to transmit the sampled data to the control unit (column 5, lines 30-36).

Re claim 6. A safety arrangement according to Claim 1, wherein the signal processor is operable to perform a crash algorithm, which causes the signal processor to instruct the control unit to transmit an actuating command to the actuator (column 5, lines 30-36 and column 5, lines 41-46).

Re claim 7. A safety arrangement according to Claim 1, wherein the signal processor is operable to receive the output of a decision algorithm, which determines whether the vehicle is in a crash situation (column 5, lines 20-23. This transmission line 102 makes the control unit 3 of the impact detection configuration 20 operable to receive the output of the central configuration's decision regarding the vehicle's crash status).

Re claim 8. A safety arrangement according to Claim 7, wherein the decision algorithm is performed by the control unit (column 5, lines 20-23 and column 6 lines 6-14).

Re claims 9 &15.

Schmid et al fails to specifically teach: (re claim 9) wherein the signal processor is operable to receive data from additional remote sensors; (re claim 15) further comprising at least one left side sensor on a left side of the vehicle and at least one right side sensor on a right side of the vehicle.

Bauch et al teaches sensors 18 and 20 on the left and right sides of the vehicle in figure 1. These sensors feed data to controller 14 which acts as the signal processor (page 5, lines 4-7) to perform a distributed crash prediction algorithm (page 6, lines 20-30).

In view of Bauch et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the vehicle safety arrangement for a vehicle as taught by Schmid et al, (re claim 9) wherein the signal processor is operable to receive data from additional remote sensors; (re claim 15) further comprising at least one left side sensor on a left side of the vehicle and at least one right side sensor on a right side of the vehicle; since Bauch et al teaches left and right sensors as a more complete accident detection method which allows for a distributed crash prediction algorithm.

4. **Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al in view of Bauch et al as applied to claim 1 above, and further in view of Burton et al (UK Patent No. GB 2,292,126).**

The teachings of Schmid et al in view of Bauch et al have been discussed above.

Schmid et al in view of Bauch et al fails to specifically teach: (re claim 3) wherein the sensor unit comprises at least two sensors responsive to acceleration, which are configured to measure at least longitudinal and lateral acceleration of the vehicle; (re claim 4) wherein the at least one sensor responsive to acceleration is configured to measure vertical acceleration of the vehicle.

Burton et al teaches vertical, normal, and transverse accelerometers as part of a system used to enact safety devices in a motor vehicle (page 1, second paragraph; and page 1, fifth paragraph through page 2, first paragraph)

In view of Burton et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the vehicle safety arrangement for a vehicle as taught by Schmid et al in view of Bauch et al, (re claim 3) wherein the sensor unit comprises at least two sensors responsive to acceleration, which are configured to measure at least longitudinal and lateral acceleration of the vehicle; (re claim 4) wherein the at least one sensor responsive to acceleration is configured to measure vertical acceleration of the vehicle; since Burton et al teaches that vertical, normal and transverse accelerometers are useful in determining whether certain vehicle safety systems should be deployed.

5. **Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al in view of Bauch et al as applied to claim 1 above, and further in view of Hermann et al (US Patent No. 6,113,138).**

The teachings of Schmid et al in view of Bauch et al have been discussed above.

Schmid et al in view of Bauch et al fails to specifically teach: (re claim 10) wherein the sensor unit comprises one or more sensors operable to measure an angular velocity of the vehicle around a longitudinal axis thereof.

Hermann et al teaches a rotational speed sensor for detecting a roll-over movement about the longitudinal axis of the vehicle, as part of a vehicle safety system (column 1, lines 44-52).

In view of Hermann et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the vehicle safety arrangement for a vehicle as taught by Schmid et al in view of Bauch et al, (re claim 10) wherein the sensor unit comprises one or more sensors operable to measure an angular velocity of the vehicle around a longitudinal axis thereof; since Hermann et al teaches that sensors which measure the angular velocity of a vehicle about its longitudinal axis can indicate the vehicle is rolling over.

6. **Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al in view of Bauch et al as applied to claim 1 above, and further in view of Foo et al (US Patent No. 6,459,366).**

The teachings of Schmid et al in view of Bauch et al have been discussed above.

Schmid et al in view of Bauch et al fails to specifically teach: (re claim 11) wherein the actuator comprises an ignitor for igniting a charge to activate the safety device.

Foo et al teaches a squib and the components necessary to ignite the squib as a known method of activating an airbag in a vehicle (column 1, lines 19-24)

In view of Foo et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the vehicle safety arrangement for a vehicle as taught by Schmid et al in view of Bauch et al, (re claim 11) wherein the actuator comprises an ignitor for igniting a charge to activate the safety device; since Foo et al teaches squibs as a known method which is commonly used in the art.

7. **Claims 12-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al in view of Bauch et al as applied to claim 1 above, and further in view of Lewallen et al (US Publication No. 2002/0084636).**

The teachings of Schmid et al in view of Bauch et al have been discussed above.

Schmid et al in view of Bauch et al fails to specifically teach: (re claim 12) wherein the control unit comprises one or more capacitors configured to store sufficient energy to cause the actuator to activate the safety device; (re claim 13) wherein the

discharge of the one or more capacitors comprises the actuation command; (re claim 14) wherein at least one actuator is located in a unit that also comprises a capacitor configured to store energy to activate the safety device, the capacitor being discharged to activate the safety device in response to the actuation command; (re claim 16) wherein the control unit is connected to a main battery of the vehicle, and supplies power to the sensor unit and to the actuator.

Lewallen et al teaches the automotive battery as a power source for an airbag system as well as using capacitors in either the control circuitry or actuators as a backup for when the power source becomes disconnected (paragraph 16).

In view of Lewallen et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the vehicle safety arrangement for a vehicle as taught by Schmid et al in view of Bauch et al, (re claim 12) wherein the control unit comprises one or more capacitors configured to store sufficient energy to cause the actuator to activate the safety device; (re claim 13) wherein the discharge of the one or more capacitors comprises the actuation command; (re claim 14) wherein at least one actuator is located in a unit that also comprises a capacitor configured to store energy to activate the safety device, the capacitor being discharged to activate the safety device in response to the actuation command; (re claim 16) wherein the control unit is connected to a main battery of the vehicle, and supplies power to the sensor unit and to the actuator; since Lewallen et al teaches an automotive

battery as the known prior art method for powering an airbag system, as well as placing capacitors with either the control circuitry or airbag actuator to power the actuating device if the main vehicle battery becomes disconnected.

8. **Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al in view of Bauch et al as applied to claim 1 above, and further in view of McCall et al (US Patent No. 6,522,992).**

The teachings of Schmid et al in view of Bauch et al have been discussed above.

Schmid et al in view of Bauch et al fails to specifically teach: (re claim 17) wherein the sensor unit has a smaller volume than that of the control unit; (re claim 18) wherein the sensor unit has a volume less than half that of the control unit; (re claim 19) wherein the sensor unit has a smaller mass than that of the control unit; (re claim 20) wherein the mass of the sensor unit is less than half that of the control unit.

McCall et al teaches a core inertial measurement unit which is miniaturized and light weight (column 3, lines 14-22).

In view of McCall et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the vehicle safety arrangement for a vehicle as taught by Schmid et al in view of Bauch et al, (re claim 17) wherein the

sensor unit has a smaller volume than that of the control unit; (re claim 18) wherein the sensor unit has a volume less than half that of the control unit; (re claim 19) wherein the sensor unit has a smaller mass than that of the control unit; (re claim 20) wherein the mass of the sensor unit is less than half that of the control unit; since McCall et al teaches a relatively small inertial measurement unit, and in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984) the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. In this case McCall et al teaches a small and light inertial measurement unit (these characteristics are known to be desirable in automobile applications) which will perform the same as the sensor unit of the application under consideration. The control unit being twice as large or twice as heavy as the sensor unit has no impact on the performance of the system.

9. **Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al in view of Bauch et al as applied to claim 1 above, and further in view of Ebeling et al (US Patent No. 6,145,389).**

The teachings of Schmid et al in view of Bauch et al have been discussed above.

Schmid et al in view of Bauch et al fails to specifically teach: (re claim 21) wherein the sensor unit is provided on a single microchip.

Ebeling et al teaches combining an accelerometer with a signal processor onto the same integrated circuit because they are both made using the same technology (column 5, line 66 through column 6, line 2), wherein this signal processor samples data from the accelerometer (column 6, lines 27-30).

In view of Ebeling et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the vehicle safety arrangement for a vehicle as taught by Schmid et al in view of Bauch et al, (re claim 21) wherein the sensor unit is provided on a single microchip; since Ebeling et al teaches combining an accelerometer and a signal processor onto the same integrated circuit since they are constructed in the same manner, which would reduce the number of individual components necessary for manufacture.

Response to Arguments

10. Applicant's arguments filed 4/20/2009 have been fully considered but they are not persuasive.

11. Applicant argues on page 7 that Schmid fails to teach the control unit located away from the central longitudinal line. While Schmid does not teach this feature, it would have been obvious to one of ordinary skill in the art at the time of the invention, in view of ColinC and *In re Japikse*, 86 USPQ 70, as outlined above to include this feature with the vehicle safety arrangement for a vehicle as taught by Schmid.

12. Applicant argues on page 8 that the IMU of McCall contains a control circuit board 9 which is most analogous to Applicant's control unit and therefor does not disclose that the control unit is located away from the central longitudinal line of the vehicle. However, Column 19, lines 1-8 and lines 34-37 of McCall teach that the control circuit board 9 of McCall is used for signal processing, which is most analogous to the signal processor located in the sensor unit of the present application. Additionally Schmid teaches the basic structure of the system, while McCall would teach to one of ordinary skill in the art miniaturization of the sensor unit, not necessarily structural components for a sensor unit.

13. Applicant further argues on pages 8-11 that the further 35 U.S.C 103(a) references do not teach the limitations mentioned in the above responses to Applicant's arguments, however, as noted in the above responses, these limitations are taught by ColinC, *In re Japikse*, and McCall.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SPENCER PATTON whose telephone number is (571)270-5771. The examiner can normally be reached on Monday-Thursday 7:30-5:00; Alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on (571)272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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5/21/2009
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